

REMARKS

Claims 1-32 are pending in the Application. Claims 1, 9, 13, 21, 26, and 29 are independent. There are no amendments to the claims.

Claim Rejections – 35 U.S.C. 103

Claims 1-4, 9-16, 21-24, and 26-31 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Hwang (U.S. Patent Application Publication No. 2002/0078090 A1) in view of Foltz (U.S. Patent No. 6,356,864).

Claims 5, 7, 17, 19, 25, and 32 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Hwang, in view of Foltz, further in view of Boguraev (U.S. Patent No. 6,865,572).

Claims 6, 8, 18, and 20 are rejected under 35 U.S.C. 103(a) as being allegedly unpatentable over Hwang, in view of Foltz, further in view of Boguraev, and further in view of Cohen (William W. Cohen, "Data Integration Using Similarity Joins and a Word-Based Information Representation Language," by AT&T Lab-Research Shannon Laboratory, Published by ACM, Vol. 18; No. 3, July 200, pages 288-321.)

Applicants respectfully traverse these rejections in view of the following arguments.

Applicants maintain all the arguments presented in the Applicants' response to the previous Office action of March 4, 2008.

However, only selected arguments are repeated herein. Therefore, the Examiner is respectfully requested to additionally consider all the arguments presented in the aforesaid prior response.

Claim 1

Claim 1 recites “A method of creating a generic text summary of a document ... comprising ... computing a score for each ... sentence ... in accordance with relevance to said ... document ... selecting a sentence for inclusion in ... summary ... wherein the selected sentence has ... high degree of relevance ... to ... document ... deleting said selected sentence from said document and eliminating terms in said selected sentence from said document; and generating the generic text summary based on the selected sentence.” (Emphasis added.)

Applicants submit that at least several elements of this claim, for example, “deleting aid selected sentence from said document” and “eliminating terms in said selected sentence from said document” are not taught or suggested by the two cited references, Hwang and Foltz.

The element “deleting aid selected sentence from said document” of claim 1 is not taught or suggested in the cited references.

The Office action cites to paragraphs [0040] and [0041] of Hwang for the alleged teaching the “deleting said selected sentence from said document” of claim 1. (Office action, p. 3.) In doing so, the Office action is interpreting the teaching of “extraction” of sentences in Hwang as the “deleting” operation recited claim 1. (Id.)

First, Applicants submit that “deleting” and “extracting” are not the same. If “extraction” were followed by “discarding the extracted item,” and were intended to mean “exclusion,” then maybe “extraction” could be “deletion.” However, where the Examiner is using “extracting” to indicate “inclusion” in the summary, then “extracting” cannot mean exclusion and is not synonymous with “deletion.”

While, the sentences that are “deleted” in claim 1 happen to be the sentences that were “selected” for inclusion in the summary. Yet, “deleting” of claim 1 is an element in addition to elements of “selecting a sentence for inclusion in ... summary” and “generating the generic text summary based on the selected sentence” of claim 1. The Examiner is using the “extraction” of Hwang to mean several different contradictory things at the same time.

Second, there is no disclosure in Hwang that the “extracted” sentences are deleted.

Third, there is no reason or logic for deletion of the selected sentences in Hwang. Hwang is determining the relevance of each sentence to a “user profile indicative of user’s interests.” (Hwang, abstract.) Hwang is not “computing a score for each ... sentence ... in accordance with relevance to said ... document [the same document containing the sentence]” of claim 1. Therefore, in Hwang, the relevance score of all of the sentences to the user profile is determined all at the same time and not in a progressive one by one fashion and the relevant sentences are all extracted at the same time to generate the summary. (See, Hwang, paragraphs [0010], [0036] and [0040], step 308 of Figure 3.) Deletion of a selected sentence changes the document before a subsequent selection step. There is no reason for deleting a sentence from the document and

modifying the document when the relevance of each sentence is being gauged with respect to factors external to the document as is done in Hwang.

The element “eliminating terms in said selected sentence” of claim 1 is not taught or suggested by the cited references.

The Office action is citing to “context information e.g., which paragraph each sentence is from” of Hwang against “eliminating terms in said selected sentence” of claim 1. (Office action, p. 3, Hwang, paragraph [0041].) Again “extracting” of Hwang that is done for inclusion of the sentence in the summary cannot be “eliminating” of claim 1. Further, the context information of Hwang cannot be “terms in said selected sentence” of claim 1 because most sentences do not include information such their paragraph number as terms in the sentence.

The flaw in the logic of the Office action becomes more pronounced in the rejection of dependent claim 2.

Dependent claim 2 adds “recreating said weighted document term-frequency vector in accordance with said deleting and said eliminating; and selectively repeating said computing, said selecting, said deleting, said eliminating, and said recreating.” (Emphasis added.)

The Office action cites to the same paragraphs [0040] and [0041] of Hwang for teaching the elements of this claim as well. (Office action, p. 11.) Then, the Office action adds paragraph [0047] of Hwang that pertains to “Processing new documents against pre-selected, client specific concepts defined by the client, or inferred by the system, and computing the relevancy score for each document” to support its rejection of claim 2. (Office action, p. 12, emphasis added.)

As such, the Office action is interpreting claim 2 as being applied to a new document. This is incorrect. Claim 2 sets forth “recreating said weighted document term-frequency vector.” This element refers back to “creating a weighted document term-frequency vector for said document” of claim 1 and pertains to the same document that was processed in claim 1. Hwang has no disclosure of repeating the process on the same document; in Hwang it is one document, one time. As such, Hwang cannot teach claim 2.

Further, Applicants request specific steps of Hwang to be cited against “computing ... selecting ... deleting ... eliminating, and ... recreating” of claim 2. Then, it would become more clear how, Hwang does not include “deleting ... eliminating, and ... recreating” of claim 2.

Response to Applicants’ previous arguments regarding Hwang are primarily presented on page 30 of the Office action.

The Examiner counts two steps of selecting sentences and extracting the selected sentences for inclusion in the summary for Hwang. (Office action, p. 2.) Then, the Examiner concludes that “Hwang’s method of extracting selected text from the document ... is equivalent to deleting the selected text from the document ... as cited in independent claim 1.” (Id.) The Examiner finds support for his arguments in page 8, lines 11-14 of the specification and block 105 of figure 1 of the Application. (Id.)

Applicants submit that block 105 is preceded by block 104, which states “select sentence, k, with highest relevance score; include k in summary.” (Application, Figure 1.) Then, block 105 continues “Delete k from S [candidate sentence set]; eliminate terms in k from document. Recreate D [weighted term frequency vector] for the document.” (Id.) Inclusion in the summary

and deletion are in two different blocks 104 and 105. These blocks of Figure 1 of the Application clearly set forth that the sentence is selected, included in the summary, and then deleted. So, again “extraction” of Hwang cannot be cited against both inclusion in the summary and deletion from the document. The cited paragraph of the Application, page 8, lines 11-14, explains the deletion and elimination of block 105 of Figure 1. This deletion and elimination have a purpose that is explained in the specification and is set apart from inclusion in the summary. Inclusion of the selected sentence in the summary is discussed elsewhere in the specification, for example, on page 8, lines 1-6.

As such, the cited passages of the specification of the Application support the arguments presented for distinguishing “deletion” and “elimination” of claim 1 from “extraction” of Hwang.

Previous arguments against Foltz are maintained but not repeated in this current response.

Accordingly, Hwang and Foltz, alone or combined do not teach or suggest all elements of claim 1 and, therefore, claim 1 is patentable over Hwang and Foltz, whether taken alone or in combination.

Claim 9

Claim 9 recites “a document editor for deleting said selected sentence from said document and for eliminating terms in said selected sentence from said document.” (Emphasis added.)

Applicants submit that for reasons similar to those stated above with respect to claim 1, Hwang, alone or combined with Foltz, does not teach or suggest at least the above-identified limitation of claim 9. Accordingly, this claim is believed to be patentable in view of the cited references.

Claim 13

Claim 13 recites “deleting said selected sentence from said candidate sentence set.”

Applicants submit that for reasons similar to those stated above with respect to claim 1, Hwang, alone or combined with Foltz, does not teach or suggest at least the above-identified limitation of claim 13. Accordingly, this claim is believed to be patentable in view of the cited references.

Claim 21

Claim 21 recites “A method of creating a generic text summary of a document; said method comprising: obtaining the document; constructing a terms-by-sentences matrix for said document; performing singular value decomposition on said terms-by-sentences matrix to obtain a singular value matrix and a right singular vector matrix, wherein each sentence in said document is represented by a column vector of a transpose of said right singular vector matrix; ranking each right singular vector in said right singular vector matrix; selecting a sentence for inclusion in said generic text summary in accordance with said ranking; and generating the generic text summary based on the selected sentence.” (Emphasis added.)

The Office action is citing to Foltz, figure 1, column 6, lines 25-30 and column 7, lines 55 to column 9, line 40, for allegedly disclosing the elements of claim 21. (Office action, pp. 8-10.)

First, Foltz does not teach a “terms-by-sentences matrix” of claim 21.

Applicants submit that claim 21 uses SVD after “constructing a terms-by-sentences matrix for said document; performing singular value decomposition on said terms-by-sentences matrix.” This is different from Foltz that, like Berry, is not interested in individual sentences, operates on entire documents, and finds the frequency of terms within the documents. The cited portions of Foltz discuss “term-by-document [matrix] of Table 2” and “term matrix” in Table 3 and a “document matrix” in Table 4; but no “terms-by-sentences matrix” as claimed in claim 21.

Second, because Foltz is not concerned with sentences of a document, it does not teach or suggest “ranking each right singular vector in said right singular vector matrix; selecting a sentence for inclusion in said generic text summary in accordance with said ranking” of claim 21. (Emphasis added.)

In short, Barry and Foltz is directed to one application of SVD and claims of the instant Application are directed to a different application of SVD.

Hwang is merely cited because it pertains to document summarization and does not cure the deficiency of Foltz.

As such, Applicants submit that Hwang, alone or combined with Foltz, does not teach or suggest all elements of claim 21. Accordingly, this claim is believed to be patentable in view of the cited references.

Claim 26

Claim 26 recites “a matrix generator for creating a terms-by-sentences matrix for said document” (Emphasis added.)

Applicants submit that for reasons similar to those stated above with respect to claim 21, Hwang, alone or combined with Foltz, does not teach or suggest at least the above-identified limitation of claim 26. Accordingly, this claim is believed to be patentable in view of the cited references.

Claim 29

Claim 29 recites “decomposing said document into individual sentences; forming a candidate sentence set from said individual sentences; constructing a terms-by-sentences matrix for said document” (Emphasis added.)

Applicants submit that for reasons similar to those stated above with respect to claim 21, Hwang, alone or combined with Foltz, does not teach or suggest at least the above-identified limitation of claim 29. Accordingly, this claim is believed to be patentable in view of the cited references.

Independent Claims 1, 9, 13, 21, 26 and 29 in View of Boguraev and Cohen

Boguraev was cited by the Office action for alleged teaching the “weighting functions” used in some of the dependent claims. (Office action, p. 19.) Cohen is cited for alleged teaching the normalizing of the vectors. (Office action, p. 22.) However, the cited portions of these references do not appear to cure the deficiencies of Hwang and Foltz in teaching or suggesting the elements of the independent claims. Independent claims 1, 9, 13, 21, 26 and 29, therefore, remain patentable over all cited references Hwang, Foltz, Boguraev and Cohen, whether alone or in combination.

Dependent Claims

Claims 2-8 depend from claim 1. Claims 10-12 depend from claim 9. Claims 14-20 depend from claim 13. Claims 22-25 depend from claim 21. Claims 27 and 28 depend from claim 26. Claims 30-32 depend from claim 29.

With respect to the rejection of dependent claims while continuing to traverse the Examiner’s characterization of the teachings of the references used by the Examiner in rejecting these claims, Applicants respectfully submit that these claims are patentable by definition, by virtue of their dependence upon their respective patentable parent independent claims.

Conclusion

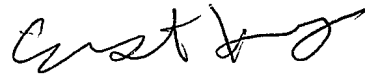
In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

RESPONSE UNDER 37 C.F.R. § 1.116
U.S. Appln. No.: 09/817,591

Attorney Docket No.: CA1122

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

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